

WHAT IS CLAIMED IS:

1. A method of manufacturing an electrode for a secondary battery by depositing a thin film composed of active material on a current collector in which a surface-
5 treated layer is formed, comprising the steps of:

removing at least part of said surface-treated layer by etching the surface of said current collector with an ion beam or plasma in order to improve the diffusion of said current collector material into said thin film; and

10 depositing said thin film on the surface of said current collector subjected to said etching step.

2. The method of manufacturing the electrode for the secondary battery according to claim 1, where said ion beam or plasma is that of argon or hydrogen.

15 3. The method of manufacturing the electrode for the secondary battery according to claim 1, where said surface-treated layer is either an antirust-treated layer or a surface oxide film of the current collector.

20 4. The method of manufacturing the electrode for the secondary battery according to claim 3, where said antirust-treated layer or said surface oxide film is etched by an ion beam of argon or hydrogen.

5. The method of manufacturing the electrode for the secondary battery according to claim 1, wherein the
25 temperature of said current collector is in the range of 20

to 250°C, in said etching step and in said depositing step.

6. The method of manufacturing the electrode for the secondary battery according to claim 1, wherein said etching step and said depositing step are performed in succession in a same reaction chamber.

7. The method of manufacturing the electrode for the secondary battery according to claim 1, wherein the diffusion of said current collector material into said thin film is promoted within a range where the intermetallic compound of said active material and said current collector material is not formed.

8. The method of manufacturing the electrode for the secondary battery according to claim 1, wherein said thin film is mainly composed of Si.

9. The method of manufacturing the electrode for the secondary battery according to claim 1, wherein at least the surface portion of said current collector is made of Cu or its alloy, and said current collector material to be diffused into said thin film is Cu.